

Laboratory Report Number: L12020146

Mark Lyon
Environmental Waste Solutions
2440 Louisiana Blvd
Albuquerque, NM 87110

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
Stephanie Mossburg – Team Chemist/Data Specialist
(740) 373-4071
Stephanie.Mossburg@microbac.com

I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.

This report was certified on February 21 2012



David Vandenberg – Managing Director

State of Origin: NM
Accrediting Authority: N/A ID:N/A
QAPP: DOD Ver 4.1



Microbac Laboratories * Ohio Valley Division
158 Starlite Drive, Marietta, OH 45750 * T: (740) 373-4071 F: (740) 373-4835 * www.microbac.com

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

There were no discrepancies.

Discrepancy	Resolution
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Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #
0016941	H	1.0		1ZE4F1930349043629

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	NA

Lab Report #: L12020146

Lab Project #: 3005.011

Project Name: White Sands MR

Lab Contact: Stephanie Mossburg

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
MPL24-0212-1	L12020146-01	02/03/2012 10:30	02/04/2012 11:21



Login Number: L12020146
Department: Conventional
Analyst: Deanna Hesson

METHOD

Analysis SW846 9040C,9045D/EPA 150.1/SM4500-H B (pH)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 42363

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over the printed name.



Login Number: L12020146
Department: Metals
Analyst: Erin Long

METHOD

Preparation: SW-846 3005

Analysis: SW-846 6010

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG389052 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: WG389052 - Client sample 01 required a dilution analysis in order to obtain a result for calcium within the calibration range.

Narrative ID: 41938

Approved By: Sheri Pfalzgraf

A handwritten signature in black ink, appearing to read "Sheri L. Pfalzgraf".



Login Number: L12020146
Department: Metals
Analyst: Ji Hu

METHOD

Preparation: SW-846 3015

Analysis: SW-846 6020

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: WG389025 - The ICSA analyzed initially on 08-Feb-2012 at 09:53 yielded a noncompliant result for cadmium. The ICSA was reanalyzed at 10:01 prior to sample analysis and was compliant for all analytes of concern.

Continuing Calibration: All acceptance criteria were met.

Continuing Calibration Blank: WG389025 - The continuing calibration blank analyzed initially on 08-Feb-2012 at 10:24 yielded a noncompliant result for thallium. The continuing calibration blank was reanalyzed at 10:31 prior to sample analysis and was compliant for all analytes of concern.

Low Level Check: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG389025 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41934

Approved By: Sheri Pfalzgraf

A handwritten signature in black ink, appearing to read "Sheri L. Pfalzgraf".



Login Number: L12020146
Department: Metals - AA
Analyst: Pierce Morris

METHOD

Preparation: SW-846 7470

Analysis: SW-846 7470

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Interference Check Standards: All acceptance criteria were met.

Continuing Calibration Verification: All acceptance criteria were met.

Continuing Calibration Blank: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Serial Dilution/Post Digestion Spikes: WG389023 - All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

Narrative ID: 41933

Approved By: Sheri Pfalzgraf

A handwritten signature in black ink, reading "Sheri L. Pfalzgraf".



Login Number: L12020146
Department: General Chromatography
Analyst: Jeremy Kinney

METHOD

Analysis SW-846 9056/300.0

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: All acceptance criteria were met.

Alternate Source Standards: All acceptance criteria were met.

Continuing Calibration and Tune: All acceptance criteria were met.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: Fraction -01 was analyzed at a dilution only due to its high screen result for CI which was over the calibration range.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Laboratory Director or the QA/QC Supervisor

will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 41975

Approved By: Mike Cochran





Login Number: L12020146
Department: Conventional
Analyst: Deanna Hesson

METHOD

Analysis EPA 310.2 (Alkalinity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42361

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written below the "Approved By" text.



Login Number: L12020146
Department: Conventional
Analyst: Dorothy Payne

METHOD

Analysis SW846 9014/9010C/SM4500-CN-C,E-20th (Cyanide)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: Cyanide-Ammonable is the difference between the total cyanide and the treated cyanide. The LCS is analyzed to show that all of the cyanide is ammonable (the treated portion is ND). The LCS forms cannot calculate cyanide ammonable. The LCS is acceptable.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42248

Approved By: Deanna Hesson

A handwritten signature in black ink that reads "Deanna Hesson".



Login Number: L12020146
Department: Conventional
Analyst: Dorothy Payne

METHOD

Analysis EPA 120.1/SM2510 B (Conductivity)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42362

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over the printed name.



Login Number: L12020146
Department: Conventional
Analyst: Deanna Hesson

METHOD

Analysis EPA 350.1/SM4500-NH3 B(NH3)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42364

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over the printed name.



Login Number: L12020146
Department: Conventional
Analyst: Deanna Hesson

METHOD

Analysis EPA 353.2/SM4500-NO3 F (Nitrate)

HOLDING TIMES

Sample Analysis: Nitrate is reported as the difference of nitrate-nitrite (28 day hold) and nitrite (48 hour hold). Both analysis were analyzed within the appropriate hold time. The nitrate hold time is within compliance.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42365

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over a horizontal line.



Login Number: L12020146
Department: Conventional
Analyst: Deanna Hesson

METHOD

Analysis EPA 365.2/SM4500-P E (Orthophosphate)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42366

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over the printed name.



Login Number: L12020146
Department: Conventional
Analyst: Holly Reed

METHOD

Analysis EPA 160.1/SM2540 C(Total Dissolved Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42369

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over the printed name.



Login Number: L12020146
Department: Conventional
Analyst: Deanna Hesson

METHOD

Analysis Water: EPA 415.1/SM5310C/SW846 9060 (Total Organic Carbon)
Soil: Lloyd-Khan Methodology

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42367

Approved By: Deanna Hesson

A handwritten signature in cursive script, appearing to read "Deanna Hesson", is written in black ink.



Login Number: L12020146
Department: Conventional
Analyst: Holly Reed

METHOD

Analysis EPA 160.2/SM2540 D (Total Suspended Solids)

HOLDING TIMES

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: All acceptance criteria were met.

Duplicates: All acceptance criteria were met.

Matrix Spikes: All acceptance criteria were met.

SAMPLES

Samples: All acceptance criteria were met.

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Narrative ID: 42368

Approved By: Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over the printed name.

Certificate of Analysis

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: ICP-THERMO2
Client ID: MPL24-0212-1	Prep Method: 3005A	Prep Date: 02/08/2012 06:33
Matrix: Water	Analytical Method: 6010B	Cal Date: 02/08/2012 10:12
Workgroup #: WG389052	Analyst: EDL	Run Date: 02/08/2012 13:09
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: T2.020812.130924
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Aluminum, Total	7429-90-5	0.0803	J	0.100	0.0500
Beryllium, Total	7440-41-7		U	0.00200	0.00100
Boron, Total	7440-42-8		U	0.100	0.0500
Iron, Total	7439-89-6	0.162		0.100	0.0500
Magnesium, Total	7439-95-4	8.81		0.500	0.250
Molybdenum, Total	7439-98-7		U	0.0100	0.00500
Potassium, Total	7440-09-7	2.42		1.00	0.500
Sodium, Total	7440-23-5	27.2		0.500	0.250
Tin, Total	7440-31-5		U	0.500	0.250
Vanadium, Total	7440-62-2		U	0.0100	0.00500
Zinc, Total	7440-66-6	0.0171	J	0.0200	0.0100
J	Estimated value ; the analyte concentration was less than the LOQ.				
U	Analyte was not detected. The concentration is below the reported LOD.				

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: ICP-THERMO2
Client ID: MPL24-0212-1	Prep Method: 3005A	Prep Date: 02/08/2012 06:33
Matrix: Water	Analytical Method: 6010B	Cal Date: 02/08/2012 10:12
Workgroup #: WG389052	Analyst: EDL	Run Date: 02/08/2012 13:12
Collect Date: 02/03/2012 10:30	Dilution: 10	File ID: T2.020812.131247
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Calcium, Total	7440-70-2	48.1		2.00	1.00

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: ELAN-ICP
Client ID: MPL24-0212-1	Prep Method: 3015	Prep Date: 02/08/2012 05:55
Matrix: Water	Analytical Method: 6020	Cal Date: 02/08/2012 09:22
Workgroup #: WG389025	Analyst: JYH	Run Date: 02/08/2012 12:04
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: EL.020812.120440
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Antimony, Total	7440-36-0		U	0.00100	0.000500
Arsenic, Total	7440-38-2	0.00333		0.00100	0.000500

Certificate of Analysis

Analyte	CAS #	Result	Qual	LOQ	LOD
Barium, Total	7440-39-3	0.102		0.00300	0.00150
Cadmium, Total	7440-43-9		U	0.000600	0.000300
Chromium, Total	7440-47-3	0.00207		0.00200	0.00100
Cobalt, Total	7440-48-4		U	0.00100	0.000500
Copper, Total	7440-50-8	0.00114	J	0.00200	0.00100
Lead, Total	7439-92-1		U	0.00100	0.000500
Manganese, Total	7439-96-5	0.00236		0.00200	0.00100
Nickel, Total	7440-02-0		U	0.00400	0.00200
Selenium, Total	7782-49-2	0.0135		0.00100	0.000500
Silver, Total	7440-22-4		U	0.00100	0.000500
Thallium, Total	7440-28-0		U	0.000200	0.000100
J	Estimated value ; the analyte concentration was less than the LOQ.				
U	Analyte was not detected. The concentration is below the reported LOD.				

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: HYDRA
Client ID: MPL24-0212-1	Prep Method: 7470A	Prep Date: 02/07/2012 09:31
Matrix: Water	Analytical Method: 7470A	Cal Date: 02/08/2012 08:28
Workgroup #: WG389023	Analyst: PDM	Run Date: 02/08/2012 09:20
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: HY.020812.092030
Sample Tag: 01	Units: mg/L	

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: HYDRA
Client ID: MPL24-0212-1	Prep Method: 7470A	Prep Date: 02/07/2012 09:31
Matrix: Water	Analytical Method: 7470A	Cal Date: 02/08/2012 11:40
Workgroup #: WG389023	Analyst: PDM	Run Date: 02/08/2012 12:30
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: HY.020812.123052
Sample Tag: 02	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Mercury	7439-97-6	0.000162	J	0.000200	0.000100
J	Estimated value ; the analyte concentration was less than the LOQ.				

Certificate of Analysis

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: IC2
Client ID: MPL24-0212-1	Prep Method: 300.0	Prep Date: 02/09/2012 01:50
Matrix: Water	Analytical Method: 300.0	Cal Date: 12/21/2011 13:49
Workgroup #: WG389105	Analyst: JBK	Run Date: 02/09/2012 09:12
Collect Date: 02/03/2012 10:30	Dilution: 2	File ID: I20209120912.58
Sample Tag: DL01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Chloride	16887-00-6	36.6		0.400	0.200
Fluoride	16984-48-8	0.288	J	0.400	0.200
Sulfate	14808-79-8	63.8		2.00	1.00
J	Estimated value ; the analyte concentration was less than the LOQ.				

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: ORION-4STAR
Client ID: MPL24-0212-1	Prep Method: 9040C	Prep Date: N/A
Matrix: Water	Analytical Method: 9040C	Cal Date:
Workgroup #: WG388866	Analyst: DIH	Run Date: 02/04/2012 12:18
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: OS12020715324501
Sample Tag:	Units: UNITS	

Analyte	CAS #	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.77		0.000	0.000

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: MPL24-0212-1	Prep Method: 310.2	Prep Date: N/A
Matrix: Water	Analytical Method: 310.2	Cal Date: 02/07/2012 12:20
Workgroup #: WG388932	Analyst: DIH	Run Date: 02/07/2012 12:31
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: SC120207004.026
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Bicarbonate (as CaCO3)		87.4		20.0	10.0

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: MPL24-0212-1	Prep Method: 310.2	Prep Date: N/A
Matrix: Water	Analytical Method: 310.2	Cal Date: 02/07/2012 12:20
Workgroup #: WG388932	Analyst: DIH	Run Date: 02/07/2012 12:31
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: SC120207004.026
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Total (as CaCO3)		87.4		20.0	10.0

Certificate of Analysis

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: MPL24-0212-1	Prep Method: 310.2	Prep Date: N/A
Matrix: Water	Analytical Method: 310.2	Cal Date: 02/07/2012 12:20
Workgroup #: WG388932	Analyst: DIH	Run Date: 02/07/2012 12:31
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: SC120207004.026
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Alkalinity, Carbonate (as CaCO ₃)			U	20.0	10.0
U	Analyte was not detected. The concentration is below the reported LOD.				

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: UV-120-1V
Client ID: MPL24-0212-1	Prep Method: SM4500-CN-I	Prep Date: N/A
Matrix: Water	Analytical Method: SM4500-CN-I	Cal Date: 02/08/2012 08:25
Workgroup #: WG388947	Analyst: JBK	Run Date: 02/08/2012 08:40
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: 1V.1202080840-19
Sample Tag: wd	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Weak/Dissociable	57-12-5	0.0239		0.0100	0.00500

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: UV-120-1V
Client ID: MPL24-0212-1	Prep Method: 9014-9010C	Prep Date: N/A
Matrix: Water	Analytical Method: 9014-9010C	Cal Date: 02/08/2012 08:20
Workgroup #: WG388944	Analyst: JBK	Run Date: 02/08/2012 08:30
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: 1V.1202080830-08
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide	57-12-5	0.256		0.0100	0.00500

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: UV-120-1V
Client ID: MPL24-0212-1	Prep Method: SM4500-CN-C,G	Prep Date: N/A
Matrix: Water	Analytical Method: SM4500-CN-C,G	Cal Date: 02/14/2012 10:45
Workgroup #: WG389446	Analyst: DLP	Run Date: 02/14/2012 13:40
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: 1V.1202141340-07
Sample Tag: D02	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Cyanide, Amenable to Chlor.	57-12-5	0.255		0.0100	0.00500

Certificate of Analysis

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: YSI-32
Client ID: MPL24-0212-1	Prep Method: 120.1	Prep Date: N/A
Matrix: Water	Analytical Method: 120.1	Cal Date:
Workgroup #: WG388884	Analyst: DLP	Run Date: 02/06/2012 14:30
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: 32.1202061430-19
Sample Tag:	Units: umhos/cm	

Analyte	CAS #	Result	Qual	LOQ	LOD
Conductivity		462		1.00	0.500

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: MPL24-0212-1	Prep Method: 350.1	Prep Date: N/A
Matrix: Water	Analytical Method: 350.1	Cal Date: 02/10/2012 12:13
Workgroup #: WG389254	Analyst: DIH	Run Date: 02/10/2012 12:31
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: SC120210004.027
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrogen, Ammonia	7664-41-7	0.0808	J	0.100	0.0500
J	Estimated value ; the analyte concentration was less than the LOQ.				

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: SMARTCHEM
Client ID: MPL24-0212-1	Prep Method: 353.2	Prep Date: N/A
Matrix: Water	Analytical Method: 353.2	Cal Date: 02/03/2012 13:00
Workgroup #: WG388789	Analyst: DIH	Run Date: 02/06/2012 09:55
Collect Date: 02/03/2012 10:30	Dilution: 4	File ID: SC12020614553601
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Nitrate-Nitrite (as N)		5.05		0.200	0.100

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: UV-120-1V
Client ID: MPL24-0212-1	Prep Method: SM4500-P-E-20th	Prep Date: N/A
Matrix: Water	Analytical Method: SM4500-P-E-20th	Cal Date: 12/21/2011 14:35
Workgroup #: WG388865	Analyst: DIH	Run Date: 02/04/2012 12:30
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: 1V.1202041230-05
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Orthophosphate	14265-44-2		U	0.0500	0.0250
U	Analyte was not detected. The concentration is below the reported LOD.				

Certificate of Analysis

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: OVEN
Client ID: MPL24-0212-1	Prep Method: 160.1/SM2540C	Prep Date: N/A
Matrix: Water	Analytical Method: 160.1	Cal Date:
Workgroup #: WG388846	Analyst: HJR	Run Date: 02/06/2012 12:33
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: EN.1202061233-10
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Dissolved Solids		122		20.0	10.0

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: TOC-VWP
Client ID: MPL24-0212-1	Prep Method: 415.1	Prep Date: N/A
Matrix: Water	Analytical Method: 415.1	Cal Date: 12/06/2011 09:40
Workgroup #: WG388863	Analyst: DIH	Run Date: 02/06/2012 23:52
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: TC02062012.036
Sample Tag: 01	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Organic Carbon		1.00		1.00	0.500

Sample #: L12020146-01	PrePrep Method: N/A	Instrument: OVEN
Client ID: MPL24-0212-1	Prep Method: 160.2/SM2540D	Prep Date: N/A
Matrix: Water	Analytical Method: 160.2	Cal Date:
Workgroup #: WG389078	Analyst: HJR	Run Date: 02/08/2012 13:29
Collect Date: 02/03/2012 10:30	Dilution: 1	File ID: EN.1202081329-06
Sample Tag:	Units: mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Total Suspended Solids		3.50	J	5.00	2.50

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
February 21, 2012

ADC - ANTHONY D. CANTER	AJF - AMANDA J. FICKIESEN	ALB - ANNIE L. BROWN
ALV - AMY L. VALENTINE	AML - TONY M. LONG	AZH - AFTER HOURS
BLG - BRENDA L. GREENWALT	BRG - BRENDA R. GREGORY	CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS	CEB - CHAD E. BARNES	CLC - CHRYS L. CRAWFORD
CLS - CARA L. STRICKLER	CLW - CHARISSA L. WINTERS	CPD - CHAD P. DAVIS
CS - CODY M. STRAHLER	CSH - CHRIS S. HILL	DDE - DEBRA D. ELLIOTT
DEV - DAVID E. VANDENBERG	DGB - DOUGLAS G. BUTCHER	DHG - DEBORAH H. GRIFFITHS
DIH - DEANNA I. HESSON	DLB - DAVID L. BUMGARNER	DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH	DSM - DAVID S. MOSSOR	ECL - ERIC C. LAWSON
EDL - ERIN D. LONG	ERP - ERIN R. PORTER	FJB - FRANCES J. BOLDEN
HAV - HEMA VILASAGAR	HJR - HOLLY J. REED	JAL - JOHN A. LENT
JBK - JEREMY B. KINNEY	JDH - JUSTIN D. HESSON	JKS - JANE K. SCHAAD
JLL - JOHN L. LENT	JWR - JOHN W. RICHARDS	JWS - JACK W. SHEAVES
JYH - JI Y. HU	KEB - KATIE E. BARNES	KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON	LKN - LINDA K. NEDEFF	LSB - LESLIE S. BUCINA
MDA - MIKE D. ALBERTSON	MDC - MIKE D. COCHRAN	MES - MARY E. SCHILLING
MMB - MAREN M. BEERY	MRT - MICHELLE R. TAYLOR	MSW - MATT S. WILSON
PDM - PIERCE D. MORRIS	PWD - PAUL W. DENT	RAH - ROY A. HALSTEAD
REK - BOB E. KYER	RLB - BOB BUCHANAN	RLK - ROBIN L. KLINGER
RWC - RODNEY W. CAMPBELL	SJP - SUZANNE J. PAUGH	SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF	TIP - TAE I. PARRISH	TMB - TIFFANY M. BAILEY
TMM - TAMMY M. MORRIS	VC - VICKI COLLIER	WJB - WILL J. BEASLEY
WTD - WADE T. DELONG		

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentatively identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL).
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ	Undetected; the analyte was analyzed for, but not detected.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below

***Special Notes for Organic Analytes



1. Acrolein and acrylonitrile by method 624 are semi-quantitative screens only.
2. 1,2-Diphenylhydrazine is unstable and is reported as azobenzene.
3. N-nitrosodiphenylamine cannot be separated from diphenylamine.
4. 3-Methylphenol and 4-Methylphenol are unresolvable compounds.
5. m-Xylene and p-Xylene are unresolvable compounds.
6. The reporting limits for Appendix II/IX compounds by method 8270 are based on EPA estimated PQLs referenced in 40 CFR Part 264, Appendix IX. They are not always achievable for every compound and are matrix dependent.



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CHAIN-OF-CUSTODY RECORD

[illegible]

*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

Internal Chain of Custody Report

Login: L12020146

Account: 3005

Project: 3005.011

Samples: 1

Due Date: 17-FEB-2012

Samplenum **Container ID** **Products**
L12020146-01 934682 300

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	A1	06-FEB-2012 08:58	JKT		
2	ANALYZ	A1	SEM	07-FEB-2012 08:58	JBK	JKT	
3	STORE	WET	A1	09-FEB-2012 09:01	JKT	JBK	

Samplenum **Container ID** **Products**
L12020146-01 934683 ALK ALK-B ALK-C

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	06-FEB-2012 08:58	JKT		
2	ANALYZ	W1	WET	06-FEB-2012 09:46	DLP	JKS	
3	STORE	WET	A1	08-FEB-2012 09:13	JKS	DIH	

Samplenum **Container ID** **Products**
L12020146-01 934684 PO4 COND COR-PH

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	06-FEB-2012 08:58	JKT		
2	ANALYZ	W1	WET	06-FEB-2012 09:11	DLP	JKS	
3	STORE	WET	A1	08-FEB-2012 08:07	JKS	DLP	

Samplenum **Container ID** **Products**
L12020146-01 934685 TDS TSS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	06-FEB-2012 08:58	JKT		
2	ANALYZ	W1	WET	06-FEB-2012 09:45	DLP	JKS	
3	STORE	WET	A1	09-FEB-2012 08:29	JKS	HJR	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login



Internal Chain of Custody Report

Login: L12020146

Account: 3005

Project: 3005.011

Samples: 1

Due Date: 17-FEB-2012

Samplenum Container ID Products
L12020146-01 934686 NH3 NO3NO2 TOC

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	06-FEB-2012 08:58	JKT		<2
2	ANALYZ	W1	WET	06-FEB-2012 09:11	DLP	JKS	
3	STORE	WET	A1	10-FEB-2012 08:10	JKS	DLP	

Samplenum Container ID Products
L12020146-01 934687 NI-MS PB-MS SB-MS SE-MS SN TL-MS V ZN AG-MS AI

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	06-FEB-2012 08:58	JKT		
2	PREP	W1	DIG	06-FEB-2012 09:40	REK	JKS	
3	ANALYZ*	DIG	METALS	08-FEB-2012 08:25	PDM	REK	
4	STORE	DIG	A1	08-FEB-2012 09:00	RLK	ERP	

**Sample extract/digestate/leachate*

Samplenum Container ID Products
L12020146-01 934688 CN CN-A CN-WD

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	06-FEB-2012 08:58	JKT		
2	ANALYZ	W1	WET	06-FEB-2012 09:45	DLP	JKS	
3	STORE	WET	A1	15-FEB-2012 08:09	JKS	DLP	

A1 - Sample Archive (COLD)
A2 - Sample Archive (AMBIENT)
F1 - Volatiles Freezer in Login
V1 - Volatiles Refrigerator in Login
W1 - Walkin Cooler in Login

